

ACCESSION NR: AP4024470

the field, so that both ion beam velocity components are much larger than the thermal velocity. The dielectric tensor is evaluated for this case, and waves excited by quasi-longitudinal, longitudinal, and quasi-transverse propagation are analyzed. It is found that the growth increment for oblique injection is appreciably larger than for injection parallel to the magnetic field. As a numerical example it is shown that a plasma of density 10^{-6} cm^{-3} propagating through the upper atmosphere with parallel and perpendicular velocity components each equal to $7 \times 10^8 \text{ cm/sec}$ (as against a thermal velocity of 10^6 cm/sec) has a growth increment $\gamma \sim 0.2 \text{ sec}^{-1}$, covers $\sim 3.5 \times 10^4 \text{ km}$ during a time on the order of $1/\gamma$, and radiates at a frequency $\sim 3 \times 10^3 \text{ sec}^{-1}$. "In conclusion, the authors are deeply grateful to A. I. Akhiezer and V. F. Aleksin for a discussion of the work and for useful advice." Orig. art. has: 1 figure and 33 formulas.

ASSOCIATION: Fiziko-tekhnicheskii institut AN UkrSSR (Physicotech-

Card 2/3

ACCESSION NR: AP4024470

nical Institute, AN UkrSSR)

SUBMITTED: 14Jan63

DATE ACQ: 15Apr64

ENCL: 00

SUB CODE: PH

NO REF SOV: 007

OTHER: 001

Card 3/3

L 8506-65 EWA(k)/EWI(1)/ENG(k)/EPA(sp)-2/EEC(k)-2/K/EPA(w)-2/EEC(t)/T/
 EEC(b)-2/EWP(k)/EWA(m)-2 Pz-6/Po-4/Pab-24/PF-4/P1-4/P1-4 IJP(c)/ASD(a)-5/
 AFETR/AEDC(a)/RAEM(a)/AFIC(p)/AS(sp)-2/AFED(t)/ASD(n)-3/ESD(c)-1/ESD(t)/RAEM(t)/
 ESD(gg) WJ/JNR/AT

ACCESSION NRI: AP4040940

5/0185/64/009/006/0692/0693

AUTHOR: KRASOVITSKIY V.B.
 Krasovy*ts'ky*, V. B.

TITLE: Waveguide properties of an electron beam--gas system B

SOURCE: Ukrayins'ky* y fizy*chny* y zhurnal, v. 9, no. 6, 1964,
 692-693

TOPIC TAGS: controlled thermonuclear reaction, particle acceleration,
 laser beam, laser beam accelerator, electron beam gas system, electron
 beam propagation, dielectric constant, plasma accelerator, dispersion
 equation 2

ABSTRACT: A theoretical derivation is presented of the dispersion
 equations which describe the coupling of an electron beam to a gas of
 oscillators enclosed in a cylindrical waveguide. The beam propagates
 in an axially symmetric mode along the waveguide. The dielectric con-
 stant of the gaseous medium has a lorentzian frequency dependence.
 The need for consideration of a system in which a "slowed-down" light
 beam can propagate results from the use of extremely high electric

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L 8506-65

ACCESSION NR: AF4040940

field strengths existing in focused light beams, which could be used for accelerating charged particles. The problem is similar to that considered by J. Neufeld (Phys. Rev. 116, 785, 1959), in which a negative dielectric constant of small absolute value resulted in amplification of the longitudinal wave. Here, the case of a small, but positive dielectric constant is shown to result in a "clamping" of the phase of longitudinal waves in the gas. The case of a beam of sectional radius very small relative to the waveguide's section is shown to result in radial as well as phase stability. "The author is exceedingly grateful to Ya. B. Faynberg for proposing the subject, and likewise, to V. J. Kurylko and M. F. Corbatanko for assistance with the work and valuable discussions." Orig. art. has: 4 formulas.

ASSOCIATION: Fizyko-tehnichnyy instytut AN URSR, Kharkov (Physico-technical Institute, AN URSR)

SUBMITTED 21Feb64

ATD PRESS: 3095

ENCL: 00

SUB CODE: NP, EC

NO REF SOV: 001

OTHER: 001

Card

2/2

L 24449-65 EWT(1)/EWT(m)/EPA(w)-2/EEG(b)-2/ENA(m)-2/ENA(h) Pt-10/Peb/Pab-10
IJP(c)

ACCESSION NR: AP4048868

S/0185/64/009/010/1134/1136

AUTHOR: Krasovy'ts'ky'y, V. B. (Krasovitskiy, V. B.); Kury'iko, V. I.
(Kurilko, V. I.)

TITLE: An accelerating system with drift tubes on superhigh frequency

SOURCE: Ukrayins'ky'y fizy'chnyy zhurnal, v. 9, no. 10, 1964, 1134-1136

TOPIC TAGS: drift tube; cylindrical diffraction grating

ABSTRACT: To make best use of the very intense electric fields which can be obtained by means of lasers for accelerating charged particles, it is necessary to have a system of waveguides for the visible range of frequencies. A cylindrical diffraction grating, which is essentially an optical equivalent of drift tubes, can be such a system. To show this, the authors analyzed the excitation of a wave having a phase velocity close to the velocity of light in a cylindrical diffraction grating made of infinitely thin rings whose width was equal to half the grating period. It is shown that waves whose length approximately equals the period of grating can be excited, and if the system is filled with a dielectric whose dielectric constant is close

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L 24449-65

ACCESSION NR: AP4048868

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to unity, the field can be focused in the neighborhood of the axis of the system. It is also shown that such waves, whose attenuation by radiation through the grating is small, can be propagated in such a system. "The author thanks Ya. B. Faynberg for selected topics and evaluation of results and O. I. Akhiezer for valuable discussions." Orig. art. has: 10 formulas.

ASSOCIATION: Fizy*ko-tekhnichny*y insty*tut AN URSR, Kharkiv (Physico-technical Institute, AN UkrSSR)

SUBMITTED: 02Apr64

ENCL: 00

SUB. CODE: NP, EC

NO REF SOV: 004

OTHER: 001

ATD PRESS: 3135

Card 2/2

ACCESSION NR: AP4040303

S/0057/64/034/006/1013/1019

AUTHOR: Krasovitskiy, V.B.; Stepanov, K.N.

TITLE: Excitation of longitudinal oscillations in a plasma with anisotropic ion velocity distribution

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.6, 1964, 1013-1019

TOPIC TAGS: plasma, plasma stability, plasma oscillation, plasma instability, magnetic mirror, plasma confinement

ABSTRACT: The stability of a plasma with a highly anisotropic ion velocity distribution with respect to the development of longitudinal oscillations in a magnetic field is discussed theoretically because of its importance for the confinement of plasma in adiabatic magnetic mirror systems such as the DCX and OGRA devices. The distribution of the difference between the ion velocity and a constant drift velocity perpendicular to the magnetic field is assumed to be Maxwellian. The drift velocity is assumed to be large compared with the thermal velocities; the ion velocity distribution function accordingly approximates a delta function. The electron velocity distribution is assumed to be Maxwellian. The dispersion equation for wave-

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ACCESSION NR: AP4040303

lengths considerably longer than the electron Larmor radius is written without derivation or reference. This dispersion equation is simplified, first for low density and wavelengths of the order of the ion Larmor radius, and then for wavelengths short compared with the ion Larmor radius. The simplified dispersion equations are discussed in detail, and expressions are given for the logarithmic increment (imaginary part of the complex frequency) for each of the instabilities found. The dispersion equation for low densities and long wavelengths is discussed separately for the three cases that both the ions and the electrons, only the ions, and only the electrons, respectively, are cold. When both the ions and electrons are cold the plasma is stable provided the density is not too great (electron Langmuir frequency less than the ion Larmor frequency), but instabilities appear as the density increases, first at the ion Larmor frequency, and then at its successive harmonics. The plasma is found to be unstable even when the ions are hot, in contradiction with the conclusion of V.I. Pistunovich (Atomnaya energiya 14, 72, 1963) that heating the ions stabilizes the plasma. The discrepancy is ascribed to Pistunovich's use of an unsuitable distribution function. Orig.art.has: 26 formulas and 1 figure.

Card 2/3

ACCESSION NR: AP4040303

ASSOCIATION: none

SUBMITTED: 15Mar63

DATE ACQ: 19Jun64

ENCL: 00

SUB CODE: ME

NR REF SOV: 004

OTHER: 002

Card 3/3

L 38107-55 EWT(1)/EWT(m)/EPF(n)-2/EMG(m)/EPA(w)-2/EMA(m)-2 Pz-5/Po-4/
Pab-10/Pt-10/Pi-4 IJP(c) WW/AT
ACCESSION NR: AP5006033 8/0141/64/007/006/1193/1195

AUTHOR: Krasovitskiy, V. B.; Kurilko, V. I.

TITLE: On the influence of radiation on the resonant acceleration of a particle in the field of a plane wave

SOURCE: IVUZ. Radiofizika, v. 7, no. 6, 1964, 1193-1195

TOPIC TAGS: particle acceleration, resonant acceleration, radiation pressure, plasmod, self oscillation acceleration

ABSTRACT: This is a continuation of earlier work by one of the authors (Kurilko, with Ya. B. Faynberg, ZhTF v. 29, 939, 1959) dealing with the nonlinear equations of motion of a particle in resonance with an electromagnetic field. In the present paper the authors consider the influence of radiation on the acceleration of a particle in the self-resonance mode, which was not considered in the earlier paper. This problem is of importance in the analysis of the effect of radiation pressure on particles accelerated in an accelerator. It is shown that the net result of the radiation is a shift in the phase of the particle velocity relative to the field, and violation of synchronism. This imposes a limitation on the

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L 38107-65

ACCESSION NR: AP5006033

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maximum attainable particle energy. In the case of interaction between the radiation and a bunch of particles (plasmoid) the deceleration produced by the radiation may be modified by the coherent radiation of the plasmoid. It is shown that the maximum energy which each plasmoid particle can acquire decreases in proportion to the square root of the number of particles in the plasmoid. Further decrease in energy can be expected if the accelerator acts not on one plasmoid but on a train of plasmoids, spatially separated by an integer multiple of the accelerating field wavelength. The acceleration of an infinite number of nonrelativistic particles, arranged periodically one wavelength apart and rotating in phase, is considered by way of an example. "The authors thank Ya. B. Faynberg for suggesting the topic and useful discussions." Orig. art. has: 9 formulas.

ASSOCIATION: None

SUBMITTED: 21Dec63

ENCL: 00

SUB CODE: NF, ME

NR REF SOV: 005

OTHER: 001

Card 2/2

KRASOVITSKIY, V.B. [Krasovyts'kyi, V.B.]

Wave guide properties of the system gas--electron beam. Ukr. fiz.
zhur. 9 no.6:692-693 Jo '64. (MIRA 17:11)

1. Fiziko-tehnicheskyy institut AN UkrSSR, Khar'kov.

KRASOVITSKIY, V.B. [Krasovyts'kyi, V.B.]; KURILEKO, V.I. [Kurylko, V.I.]

Accelerating system with drift tubes at superhigh frequencies.

Ukr. fiz. zhur. 9 no.10:1134-1136 0 '64 (MIRA 18:1)

1. Fiziko-tehnicheskyy institut AN UkrSSR, Khar'kov.

KULITSKIY, V.B.; KULIKOV, V.I.

Effect of radiation on the resonance acceleration of a particle
in a plane wave field. Izv. vys. ucheb. zar.; radiofiz. 7 no.6:
1193-1195 '64. (NIIA 16:3)

L 07400-67 EWT(1) OD/GW
ACC NR: AT6020584 (N) SOURCE CODE: UR/0000,55/000/000/0205/0208
AUTHOR: Krasovitskiy, V. B.; Kurilko, V. I. 33
ORG: none B + /
TITLE: On the deceleration of relativistic particles in lower layers of the atmosphere ✓
SOURCE: AN UkrSSR. Vysokochastotnyye svoystva plazmy (High frequency properties of plasma). Kiev, Naukovo dumka, 1965, 205-208
TOPIC TAGS: atmospheric radiation, relativistic particle, Cerenkov radiation, bremsstrahlung, atmospheric model
ABSTRACT: The deceleration of charged relativistic particles in the atmosphere is investigated. The deceleration in the medium is due to energy loss by radiation which is computed on the assumption of a specific model of the atmosphere (isotropic dielectric with a certain dispersion). Three spectral regions are investigated. It is shown that for low particle energy the bremsstrahlung increases as four-thirds power of energy. At moderate energies (conditions), the maximum radiation occurs at a frequency proportional to the reciprocal of energy and the power loss of a particle is inversely proportional to the square of its energy. As the energy of the particle increases further a more complicated dependence on the energy is found to occur. Also, the spectral peak dependence is different than at lower energies. The Cerenkov radiation for the

Card 1/2

L 07400-67

ACC NR: AT6020584

case considered in this work is always greater than bremsstrahlung, when it is necessary to consider the effect of the medium on particle energy. Orig. a.t. has: 7 formulas.

SUB CODE: 20,04/

SUBM DATE: 19Nov65/

ORIG REF: 007/

OTH REF: 002

Card 2/2 *pla*

1 31955-65 ENT(1)/EN(6)

ACCESSION NR: AF500410

8/0076/6 048/001/0373/0357

AUTHOR: Krasovitskiy, V. E.; Kurikba, V. I.

TITLE: Propagation and excitation of electromagnetic waves in a nonlinear medium

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 1, 1967, 353-357

TOPIC TAGS: electromagnetic wave excitation; nonlinear medium; level population inversion; two level system; parametric excitation

ABSTRACT: In view of the appreciable electromagnetic field intensities made possible by coherent sources in the optical band, the authors analyze the influence of nonlinearities in the interaction between the field and matter on the possibility of excitation

of nonlinearities in the interaction between the field and matter on the propagation of electromagnetic waves in a medium, and also the possibility of excitation of nonlinear electromagnetic oscillations in a medium by means of a beam of charged particles. Specifically, the problem deals with the propagation of a transverse wave of large amplitude in a two-level system. A nonlinear dispersion equation for such waves is derived and investigated. It is shown that under certain conditions the transverse wave is stable with respect to parametric excitation.

Card 1/2

L 31955-65

ACCESSION NR: AP5004410

tion of a longitudinal wave with the same phase velocity. The problem of excitation of a two-level system by an electron beam is studied and it is shown that if the condition for the anomalous Doppler effect is satisfied, then the system can be transformed to the inverted state. Coupled nonstationary longitudinal-transverse oscillations in the system made up of the beam and the active medium are treated. The study of the equations of the coupled longitudinal-transverse oscillations of the system shows that the system cannot be in a state in which the level populations or the polarization vector direction do not change with time. We are grateful to Ya. B. Fainberg for proposing the topic and for useful discussion, and to E. V. Khokhlov and V. R. Shapira for a discussion of the results." Orig. art. has: 16 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy Institut Akademii nauk Ukrainssoy SSR (Physico-technical Institute, Academy of Sciences UkrSSR)

SUBMITTED: 15Jul64

ENCL: 00

SUB CODE: EM, NP

NR REF SOV: 004

OTHER: 001

Card 2/2

L 33237-65 EWT(1)/E2C(t)

ACCESSION NR: AP5007314

8/0057/65/035/003/0580/0582

AUTHOR: Krasovitskiy, V. B.; Kurilko, V. I.

TITLE: Traveling waves in a nonlinear electromagnetic medium

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 3, 1965, 580-582

TOPIC TAGS: traveling wave, traveling wave propagation, coupled oscillation, wave transformation

ABSTRACT: An investigation is made of the propagation of traveling waves without dissipation in a nonlinear two-level medium. A set of equations describing the interaction of electromagnetic waves in such a system consists of Maxwell equations and material equations of the medium. The solutions show that coupled longitudinal and transverse oscillations in the system are equivalent to oscillations of a "particle" in a two-dimensional potential well and that the steepness of the well's walls increases with the amplitude of the "particle" oscillations. Since the longitudinal and transverse oscillations are coupled, there is an exchange of energy between them. In the case when the amplitude of the longitudinal oscillations is small in comparison to that of the transverse oscillations, the former will increase until it equals

Card 1/2

L 33237-65

ACCESSION NR: AP5007314

the latter. Thus, a transformation of transverse waves into longitudinal waves will take place. An inverse transformation of longitudinal waves into transverse waves will proceed analogously. Orig. art. has: 5 formulas. [JA]

ASSOCIATION: Fiziko-tehnicheskii institut AN USSR, Kharkov (Physicotechnical Institute, AN UkrSSR)

SUBMITTED: 12May64

ENCL: 00

SUB CODE: EC, EM

NO REF SOV: 003

OTHER: 002

ATD PRESS: 3207

Card 2/2.

L 11059-66 EWT(d)/EWT(1)/I/EWA(m)-2/ENP(1) LJP(c) AT

ACC NR: AP6002724

SOURCE CODE: UR/0 156/65/049/006/1831/1835

AUTHOR: Krasovitskiy, V. B.; Kurilko, V. I.

ORG: Physicotechnical Institute, Academy of Sciences Ukrainian SSR (Fiziko-tekhni-cheskiy institut Akademii nauk Ukrainakoy SSR)

TITLE: Nonlinear theory of beam instability under conditions of the anomalous Doppler effect

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 6, 1965, 1831-1835

TOPIC TAGS: plasma wave absorption, plasma wave propagation, particle beam, Doppler effect

ABSTRACT: The ¹⁶hydrodynamic approximation is used in an analysis of the excitation of one-dimensional transverse waves by an ²electron beam propagated in a plasma with a velocity greater than the phase velocity of the wave. Solutions in the form of waves with a fixed wave number and time varying amplitude and phase are analyzed. It is shown that in the case of small beam densities the main nonlinear effect restricting an increase of the oscillation amplitude is the violation of synchronism between the particles and field as a result of deceleration of the beam; this results in a periodic alternation of excitation and absorption of the field by the beam. The maximal oscillation amplitudes are calculated. The possibility of using this effect for re-

Card 1/2

L 11059-66

ACC NR: AP6002724

moval of beam instabilities by an external field are discussed. Orig. art. has:
9 formulas. 0

SUB CODE: 20 ./ SUBM DATE: 02Jun65/ ORIG REF: 007/ ATD PRESS: 417 [CS]

Card

2/2

L 14961-66 EPF(n)-2/EWT(1)/ETC(f)/EWG(m) IJP(c) AT

ACC NR: AP6002466

SOURCE CODE: UR/0386/65/002/011/0511/0514

AUTHOR: Roulends, Dzh.; Krasovitskiy, V. B.; Kurilko, V. I.

ORG: [Roulends] UKAEA, Culham lab. Culham, Abingdon, Berks; [Krasovitskiy, Kurilko]
FTI AN UkrSSR, Khar'kov

TITLE: Stability in phased oscillators

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu.
Prilozheniye, v. 2, no. 11, 1965, 511-514

TOPIC TAGS: magnetohydrodynamics, harmonic oscillator, MHD instability, Maxwell
equation, hydrodynamics

ABSTRACT: The authors consider the problem of stability in a system of phased oscillators, i. e. oscillators whose phase is fixed in velocity space. This type of a system may arise when a transverse electromagnetic wave is propagated in a plasma along the magnetic field. In this case, the problem of stability in the system of phased oscillators and in the waves propagating in the plasma are completely identical. This problem is studied in the hydrodynamic approximation. The initial system of equations consists of hydrodynamic equations for the plasma particles and

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L 14961-66

ACC NR: AP6002466

Maxwell equations. It is assumed that the amplitudes of the velocity and the fields are constant and formulas are given showing the relationships between them. Qualitative analysis shows that there are always frequencies corresponding to instability when the amplitude of the field is large enough. The simplest limiting cases are examined for a quantitative evaluation of increments and instability conditions. In the case of a rare plasma (strong magnetic field) instability may exist only in the fast wave region. An increase in the amplitude of the wave results in a wider instability region (with respect to frequency), as well as an increase in the increment of instability. Instability shows up as the threshold type in the case of a dense plasma (weak magnetic fields). The results are compared with previous studies. The authors thank Ya. B. Faynberg for discussion of the results of this work. One of the authors (R. Dzh.) thanks GKIAE SSSR, and also the director of the FTI AN UkrSSR for his hospitality. Orig. art. has: 7 formulas.

SUB CODE: 09

SUBM DATE: 19Oct65/

ORIG REF: 002/

OTH REF: 000

Card 2/2 20

L 18891-66 ENT(1) GG

ACC NR: AP6007097

UR/0057/66/036/002/0401/0404

AUTHOR: Krasovitskiy, V.B.; Kurilko, V.I.

ORG: None

TITLE: Interaction of electromagnetic waves with a two-level system

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 2, 1966, 401-404

TOPIC TAGS: electromagnetic wave absorption, electromagnetic wave reflection, nonlinear theory, nonlinear effect, nonlinear focusing effect

ABSTRACT: The authors discuss the interaction of electromagnetic waves of frequency f with a nonlinear medium characterized by a single resonant frequency F and the following relation between the polarization P and the electric vector E :

$$P = \pm kE/(1 - k^2E^2)^{1/2}, \text{ with } k = 2Nd^2F/hf|F - f|.$$

Here N is the density of active molecules, d is the dipole moment of a molecule, h is Planck's constant and P and E are measured in units of Nd . A half-space with a plane boundary filled with the nonlinear medium is discussed and formulas are derived for the reflection and transmission coefficients when F exceeds f and for the nonlinear input impedance of the medium when f exceeds F . In

Card 1/2

UDC: 538.56

L 18991-66

ACC NR: AP6007097

the one case the transparency of the medium increases, and in the other case the input impedance decreases with increasing amplitude of the wave. It is shown that when f exceeds F the nonlinear dependence of the polarizability on the field strength can give rise to focusing of the electromagnetic wave. An equation valid when k is small is derived for the linear dimensions of the region in which the field is focused. "The authors thank Ya.B.Faynberg for suggesting the topic and for valuable discussions." Orig. art. has: 14 formulas. [15]

SUB CODE: 20/

SUM DATE: 05Jun65/

ORIG REF: 006/

OTH REF: 003

ATD PRESS: 4217

Card 2/2mc

CH. KOVIL'KIN, V.S.; KUTLIK, V.I.

Nonlinear theory of beam instability under conditions of the
anomalous Doppler effect. Zhur. eksp. i teor. fiz. 40 no.6:
1831-1835 D '65. (MHD 1981)

1. Fiziko-tekhnicheskii institut AN Ukr SSR. Subm. Jan June 2,
1965.

L 41044-66 EWT(m)

ACC NR: AP6013733

SOURCE CODE: UR/0089/66/020/004/0347/0348

AUTHOR: Krasovitskiy, V. B.

ORG: none

TITLE: The acceleration of charged particles in plane wave fields with variable phase velocity

SOURCE: Atomnaya energiya, v. 20, no. 4, 1966, 347-348

TOPIC TAGS: linear acceleration, particle accelerator, focusing accelerator

ABSTRACT: In order to ¹⁹accelerate charged particles in linear accelerators it is usually necessary to secure a longitudinal component of the electric field and to secure the synchronization between the velocity of the particles and the phase velocity of the wave. The present author investigates the feasibility of the acceleration of free charged particles by means of transverse waves with variable phase velocity. It is achieved by the $(e/c) \cdot [\vec{v} \times \vec{H}]$ force (\vec{H} - magnetic field of the wave), thus no longitudinal electrical field is needed. The author shows that if the synchronism condition is achieved and the phase velocity of the wave is increased then there will be self-phasing (V. I. Veksler, Dokl. AN SSSR, 43, 346, 1944) and focusing with respect to the transverse velocity of the accelerated particle. The acceleration

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UDC: 621.384.62

I-41044-66
ACC NR: AP6013733

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is only conditionally linear, and with the increase in energy the acceleration efficiency decreases. The author thanks Ya. B. Faynberg for suggesting the topic and discussing the results, V. I. Kurilko for the help during the study, and A. G. Bonch-Osmolovskiy for a valuable discussion. Orig. art. has: 9 formulas.

SUB CODE: 18/ SUBM DATE: 15Aug66/ ORIG REF: 006/ OTH REF: 000

Card 2/2 *hh*

ACC NR: Ar6031438

SOURCE CODE: UR/0056/66/051/002/0445/0448

AUTHOR: Krasovitskiy, V. B.; Kurilko, V. I.

ORG: Physicotechnical Institute of the Academy of Sciences, Ukrainian SSR (Fiziko-
tehnicheskii institut Akademii nauk Ukrainskoy SSR)

TITLE: On the theory of the amplification of longitudinal waves by a beam of
charged particles in a nonlinear plasma

SOURCE: Zh eksper i teor fiz, v. 51, no. 2, 1966, 445-448

TOPIC TAGS: nonlinear plasma, longitudinal wave, plasma wave

ABSTRACT: An investigation was made of the amplification of a monochromatic longitudinal wave by a beam of charged particles in a nonlinear plasma described by the dielectric constant $\epsilon \equiv 1 - \omega_p^2/\omega^2 \exp(-E^2/E_0^2)$ (E is the amplitude of the excited field). It was found that for a sufficiently high beam density the back effect of the excited oscillations on the motion of the beam particles can be neglected, at least in the vicinity of plasma resonance ($|\omega - \omega_p| \ll \omega_p$). The maximum amplitude of the amplified wave was found and the dependence of the amplitude on the coordinate was determined. It is emphasized that the energy of the beam particles at the output from the plasma layer can be higher than the injection energy. Orig. art. has: 8 formulas.

[JA]

SUB CODE: 20/ SUBM DATE: 05Jan66/ ORIG REF: 009/ OTH REF: 002/ ATD PRESS: 5082
Card 1/1

ACC NR: AP7001322

SOURCE CODE: UR/0057/66/036/012/2210/2212

AUTHOR: Krasovitskiy, V. B.; Kurilko, V. I.

ORG: none

TITLE: Oscillator acceleration by laser emission

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 12, 1966, 2210-2212

TOPIC TAGS: oscillator acceleration, particles acceleration, laser beam, ~~particle acceleration~~ *laser emission, laser application*

ABSTRACT: An analytical investigation was made of the possibility of using laser emission as a means for amplifying particle energy. The laser beam was considered a superposition of a large number of various oscillations of close frequencies and random phases. The analysis shows that the principles of particle acceleration by a resonant field are also valid, under certain circumstances, in the case of a laser beam despite the beam's wave phase differences and deviations from pure monochromatism. The required condition for acceleration is an appropriate pulse duration, which should not exceed a certain critical value. Pulse duration above the critical leads to a reduction of the acceleration rate. The acceleration effect is said to stem mainly from the resonant harmonics of the field, which are most effectively absorbed by

Cord 1/2

ACC NR: AP7001322

the oscillator. The authors thank Ya. B. Faynberg for suggesting the topic and for discussing the results. Orig. art. has: 9 formulas.
[WA-14]

SUB CODE: 20/ SUBM DATE: 22Jul66/ ORIG REF: 006

Card 2/2

ACC NR: AP7001322

SOURCE CODE: UR/0057/66/036/012/2210/2212

AUTHOR: Krasovitskiy, V. B.; Kurilko, V. I.

ORG: none

TITLE: Oscillator acceleration by laser emission

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 12, 1966, 2210-2212

TOPIC TAGS: oscillator acceleration, particles acceleration, laser beam, ~~particle acceleration~~ *laser emission, laser application*

ABSTRACT: An analytical investigation was made of the possibility of using laser emission as a means for amplifying particle energy. The laser beam was considered a superposition of a large number of various oscillations of close frequencies and random phases. The analysis shows that the principles of particle acceleration by a resonant field are also valid, under certain circumstances, in the case of a laser beam despite the beam's wave phase differences and deviations from pure monochromatism. The required condition for acceleration is an appropriate pulse duration, which should not exceed a certain critical value. Pulse duration above the critical leads to a reduction of the acceleration rate. The acceleration effect is said to stem mainly from the resonant harmonics of the field, which are most effectively absorbed by

Card 1/2

ACC NR: AP7001322

the oscillator. The authors thank Ya. B. Faynberg for suggesting the topic and for discussing the results. Orig. art. has: 9 formulas.
[WA-14]

SUB CODE: 20/ SUBM DATE: 22Jul66/ ORIG REF: 006

Card 2/2

L 08811-67 EWT(1) GG/QD
ACC NR: AT6020437

(N)

SOURCE CODE: UR/0000/65/000/000/0062/0068

AUTHOR: Krasovitskiy, V. B.; Kurilko, V. I.

ORG: none

42

TITLE: Excitation and propagation of electromagnetic waves in a two-level system

SOURCE: AN UkrSSR. Vzaimodeystviye puchkov zaryazhennykh chastits s plazmoy (Interaction of charged particle beams with plasma). Kiev, Naukova dumka, 1965, 62-68

TOPIC TAGS: electromagnetic wave generation, motion equation, electromagnetic wave propagation, charged particle

ABSTRACT: The interaction of a compensated uniform beam of charged particles with non-linear medium is considered. The property of the medium is described by a semi-classical theory where the polarization vector is determined in terms of quantum mechanics and the electric and magnetic fields follow the classic description. It is assumed that the medium has two energy states and that dissipation effects are neglected. The system is described by Maxwell equations, and by equations describing the active medium. Analysis of these equations indicates that in the case of large amplitude waves, periodic pumping of the energy of longitudinal oscillations into the internal energy of the medium occurs. This leads to an inverted energy state population, the duration of which is computed. In this case, the period of oscillations increases logarithmically

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00011-67

ACC NR: AT6020437

with decreasing initial amplitude of the oscillations. Development of small transverse oscillations also is considered; here it is shown that the influence of the medium on transverse propagation weakens as the wave amplitude increases. As the oscillations become very intense, the level populations are modulated with double the frequency of transverse oscillations. Orig. art. has: 16 formulas.

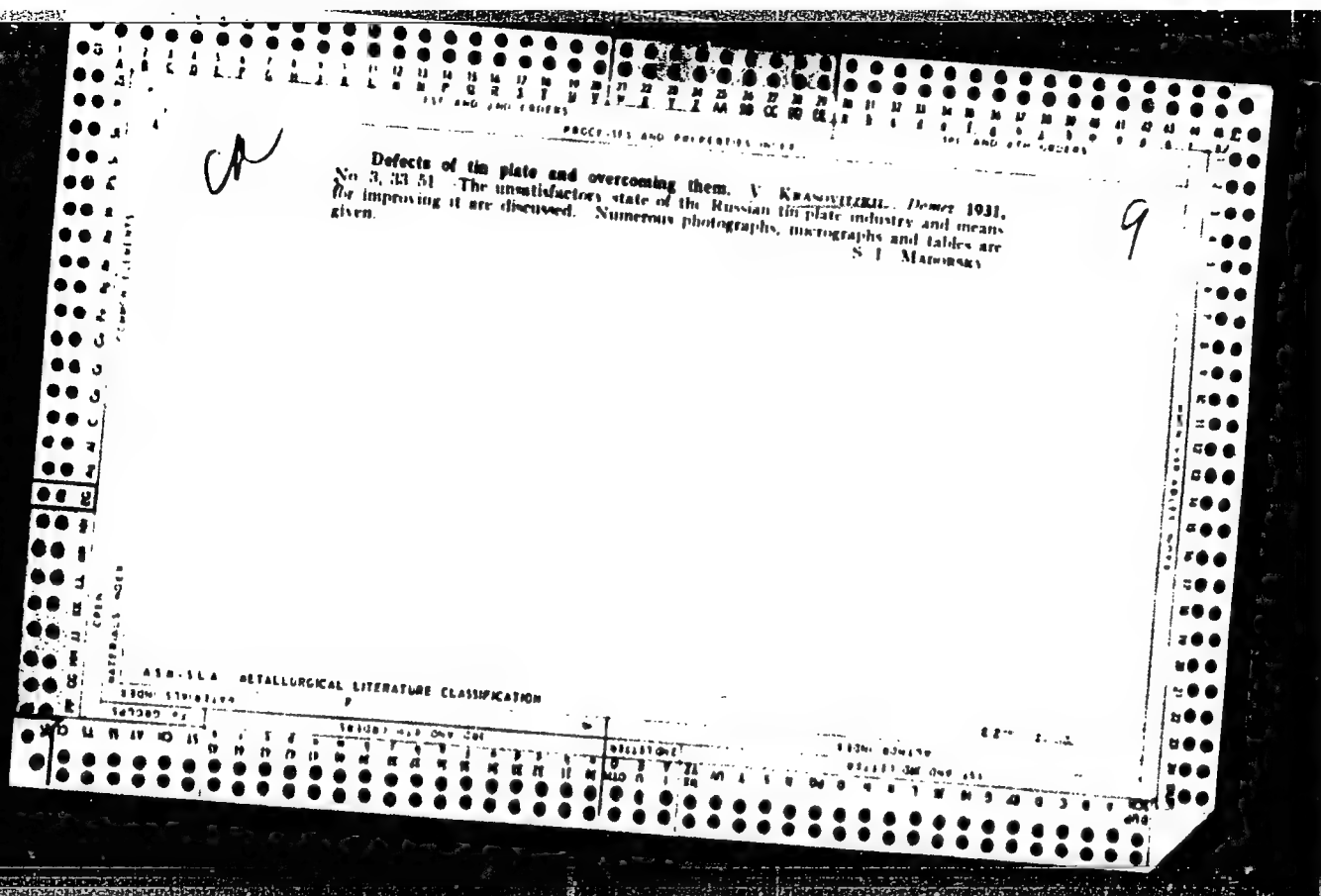
SUB CODE: 20/

SUBM DATE: 11Nov65/

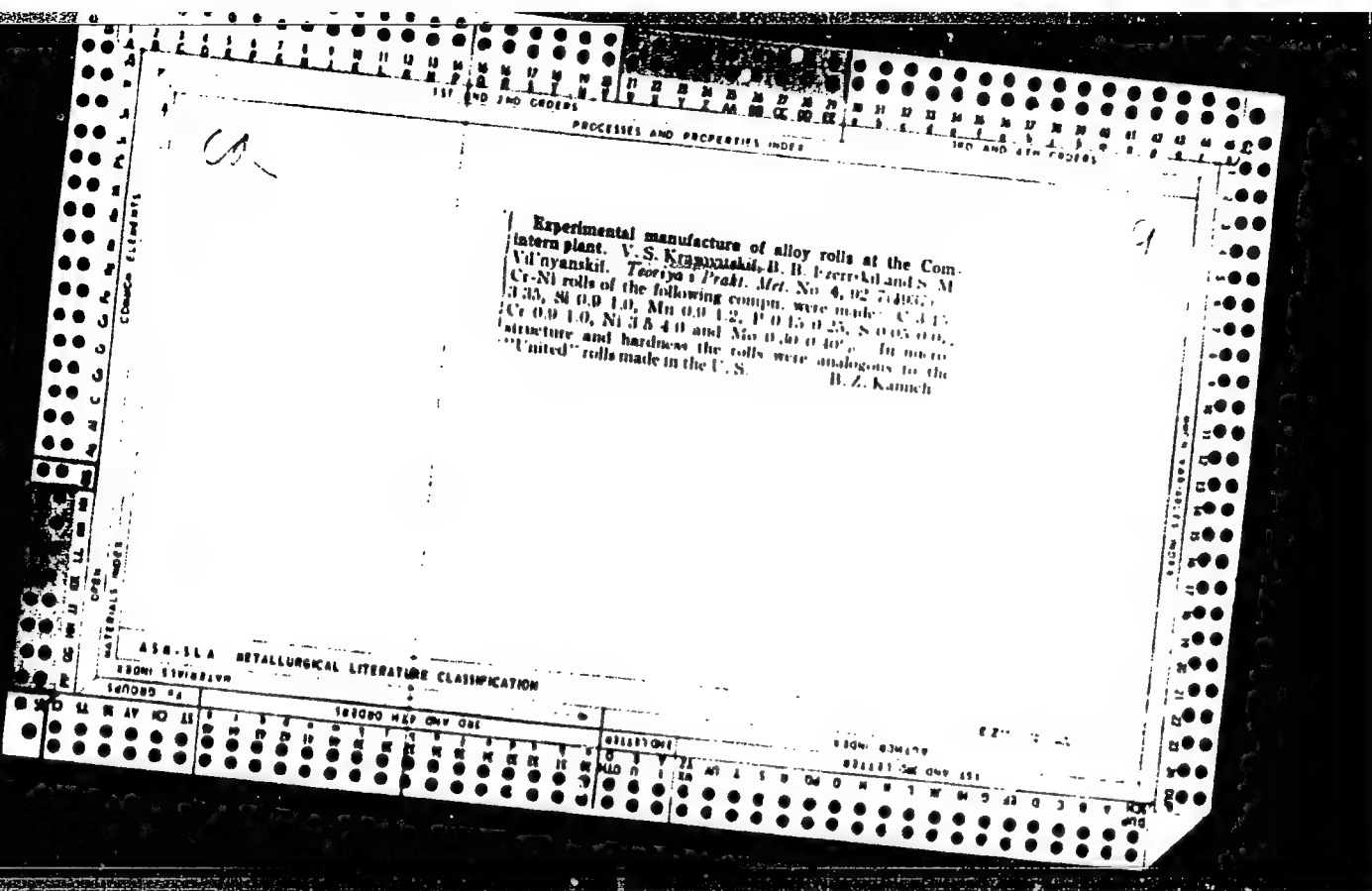
ORIG REF: 005/

OTH REF: 003

Card 2/2 nst



Internal Stresses and Stability of Cast-Iron Rolls. V. Kravchuk, (Stal, 1933, No. 10, pp. 49-50). The author discusses the breaking of cast-iron rolls immediately after casting or after short service, and criticizes the prevalent theory that such failures are due to internal stresses. Only radial stresses have been experimentally demonstrated, and these occasion longitudinal, but not transverse, fracture or cracking. Moreover, radial stresses are potentially not dangerous, since they are opposite in sign to those caused by the heating of the rolls in service. Failure occurs owing to structural weakness; the dendritic structure is orientated with the axes perpendicular to the roll surface and the strength of the roll under these conditions is low. To remedy difficulties of this type the author suggests the use of a more uniform pig-strap mixture for the production of the rolls, the use of an iron lower in manganese and phosphorus, longer annealing and the ageing of the rolls for 5-6 months before putting them into service. (In Russian).



KRASOVITSKIY, V. S.

AUTHOR: Krasovitskiy, V.S., Candidate of Technical Sciences. 133-9-21/23

TITLE: Casting of Chilled Rolling Rolls in Coated Chill Moulds.
(Otlivka otbelennykh prokatnykh valkov v kokilyakh s obmazkoy)

PERIODICAL: Stal', 1957, No.9, pp. 855 - 857 (USSR).

ABSTRACT: During casting of chilled rolling rolls a large proportion of defective rolls is often obtained; moreover, the durability of chill moulds is low. The main cause of defects is a thermal shock during the contact of cast metal with the mould which is considered necessary to produce a chilled layer on the roll. Calculations (given in the paper) indicated that the temperature of the internal surface of the mould in the initial moment of casting reaches 1 187 °C while with a 2 mm thick refractory coating it would be 248 °C. The use of a coating with a coefficient of heat conductivity 160 times smaller than that of the mould materials, sharply improved cooling conditions of the cast metal without an interference with the formation of a chilled layer. The composition of refractory coating was as follows: chamotte powder (40%), river sand (40%) and a refractory clay (20%). The composition of the metal used for casting rolls was as follows: C 3.2 - 3.4%, Si 0.8 - 0.9%, Mn 0.6 - 0.8%, Cr 0.3 - 0.5%, Ni 0.4 - 0.6%, S 0.1 - 0.3%, P 0.2 - 0.3%. The

Card1/2

Casting of Chilled Rolling Rolls in Coated Chill Moulds.

133-9-21/23

following advantages for casting rolls using the above method are claimed: a) possibility of using chromium and nickel containing iron and increasing the proportion of carbide forming elements in cupola charges without risk of the formation of cracks during casting and breaking of rolls in service; the possibility of discarding the use of phosphorus irons, as well as increasing the proportion of steel scrap; the possibility of using sulphurous iron; the possibility of decreasing the wall thickness of chill moulds 2 - 3 times; the stability of moulds increases many times; liquidation of defective castings due to cracks, shrinkage cavities and non-uniform chilling and a decrease in internal stresses in rolls which increases their durability in service. It is stated that the service life of rolls increased by a factor of 2-3; however, no comparative data are given. There are 4 references, 3 of which are Slavic.

AVAILABLE: Library of Congress.
Card 2/2

KRASOVITSKIY, V.S.; RASPOPOV, I.V.; YEGNUS, R.M.

Device to determine the strength of metal mold coatings. Lit.
proizv. no.1:47 Ja '59.
(Molding (Founding)—Testing) (MIRA 12:1)

KRASOVITSKIY, V.S., kand.tekhn.nauk; TURCHENKOVA, Ye.K., inzh.; YEGNIDS,
R.M., inzh.

Increasing the durability of closed-bottom molds. Stal' 21 no.5:
475-476 My '61. (MIRA 14:5)

1. Zhdanovskiy metallurgicheskiy institut i zavod "Azovstal'."
(Steel ingots)

KRASOVITSKIY, V.S., kand.tekhn.nauk; TURCHENKOVA, Ye.K., inzh.;
YEGNUS, R.M., inzh.

Chill casting of trays for ingot molds. Stal' 23 no.2:185-187
F '63. (MIRA 16:2)

1. Zhdanovskiy metallurgicheskiy institut i Avoskiy staleplavil'nyy
zavod im. Sergo Ordzhonikidze v Zhdanove.
(Iron founding)

KRASOVITSKIY, V.S., kand.tekhn.nauk; BOL'SHAKOV, L.A., kand.tekhn.nauk;
TURCHENKOVA, Ye.K., inzh.; GORBANEV, Ya.S., inzh.; YEGNUS, R.M.,
inzh.; CHUMAK, M.A., inzh.; KISSEL', N.N., inzh.; SAL'MAN, B.Sh.,
inzh.

Increasing the stability of ingot molds by an addition of
ferrotitanium. Stal' 23 no.8:717-718 Ag '63. (MIRA 16:9)

1. Zhdanovskiy metallurgicheskiy institut, zavod "Azovstal'" 1
zaved im. Il'icha.

(Ingot molds)

S/123/61/000/015/009/032
A004/A101

AUTHOR: Krasovitskiy, Ye. I.

TITLE: The role of unification and standardization in gang technology

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 14, 1961, 2, abstract
15B4 (V sb. "Gruppovaya tekhnol. v mashinostr. i priborostr.",
Moscow - Leningrad, Mashgiz, 1960, 340 - 353)

TEXT: The collected data of standardized parts made it possible at the "Vulkan" Plant to follow up, according to type and size, the applicability of parts indicating their quantitative indices. Gang material standards have been compiled for all parts and technological gang processes and equipment have been developed. A total of 449 items of standardized parts (220,000 pieces) has been introduced at the plant. The main attention was paid to the unification of those parts the machining of which was complex and labor-consuming, e.g. levers, brackets, bearings, stands, covers, etc. The plant has developed a joint standard with 675 combined diameters for which 1,000 gages are necessary against 21,000 needed for differentiated standards. The unification and standardization of part elements led to an increase of the technological groups (up to 7 times) and to a

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The role of unification and standardization ...

S/123/61/000/015/009/032
A004/A101

reduction of gang settings and nomenclature of the used tools, which contributes to an increase in the efficiency of gang working methods. The author presents examples of the development of basic models of carding and Jersey machines. He reports on the introduction of gang technology in the cast iron foundry where parts weighing 1.5-5 kg with a maximum wall thickness of 4 mm are cast by gang methods and on the application of gang jigs for the machining of apertures in cast parts on vertical drilling machines instead of boring machines. There are 7 photos.

D. Vaks

[Abstracter's note: Complete translation]

Card 2/2

KRAEOVITSKIY, Ye.I.

Activity of the enterprise for the manufacture of machinery
for the light industry. Gos. plan. inst. nauch. i tekhn.
tekh.-ekon. inform. Gos. nauch. inst. nauch. i tekhn.
inform. 17 no.2:75-76 '64.
(MIR: 17:6)

TKACHENKO, A.P., gornyy inzh.; KRASOVSKIY, Yu.P., gornyy inzh.;
DUBENYUK, V.M., gornyy inzh.; OVCHINNIK, I.T., gornyy inzh.

Expansion of short-delay blasting in Krivoy Rog Basin strip
mines. Sber. nauch. trud. KGRI no.15:79-82 '63.

(MIRA 17:8)

TEACHING, A. S.; TEACHING, J. S. 1972. REV. J. S. TEACHING, S. S.

dependence of the people of the world on the technology of blasting is becoming more and more acute. In the U.S.S.R. the use of explosives is increasing rapidly. The use of explosives in the U.S.S.R. is increasing rapidly. The use of explosives in the U.S.S.R. is increasing rapidly.

KRASOVITSKIY, Yu.V., insh.

Cleaning of open-hearth furnace stack gases [from "Blast
Furnace and Steel Plant," no.7. 1955]. Metallurg 5
no.9:21 S '60. (MIRA 13:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut promy-
shlennoy i sanitarnoy ochistki gazov.
(Gas purification)

GUDEMCHUK, V.A. (deceased), kand.tekhn.nauk; SHABUNIN, Ye.M., inzh.
KRASOVITSKIY, Yu.V., inzh.; BARKINA, L.A., inzh.

Selecting a method of sanitary purification of open-hearth
furnace waste gases. Metallurg 5 no. 12:21-23 D '60.

(MIRA 13:11)

1. Zavod "Serp i molot" i Gosudarstvennyy nauchno-issledovatel'skiy
institut promyshlennoy i sanitarnoy ochistki gazov.
(Open-hearth furnaces) (Gas purification)

KRASOVITSKIY, Yu.V., inzh.

High temperature cleaning of open-hearth furnace flue gases.
Stal' 21 no.8:762-767 Ag '61. (MIRA 14:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut po promyshlennoy i sanitarnoy ochistke gazov.
(Open-hearth furnaces) (Gases--Purification)

PITELINA, N.P.; KRASOVITSKIY, Yu.V.

Mechanism of action of a layered granular filter. Inzh.-fiz.zhur.
5 no.4:54-57 Ap '62. (MIRA 15:4)

1. Institut po promyshlennoy i sanitarnoy ochildke gazov, Moskva.
(Filters and filtration)

KRASOVITSKIY, Yu.V., inzh.

Filtering medium for high-temperature scrubbing of flue gases.
Prom.energ. 17 no.5:31-33 My '62. (MIRA 15:5)
(Gas—Purification)

KRASOVITSKIY, Yu.V.; ZHUZHNIKOV, V.A.

Some regularities of the separation process in dust-containing
gas stream by filtration at a constant rate. Khim. prom. no.2:
129-132 F '63. (MIRA 16:7)

(Filters and filtration)
(Gases—Purification)

KRASOVITSKIY, Yu.V.; ZHUKHIKOV, V.A.

Role of the frontal layers of the filtering plate in the process
of the separation of solid particles from gases. Khim. prom. 40
no.8:620-621 Ag '64.
(MIRA 18:4)

KRASOVITSKIY, Z.I.

Department of gastro-intestinal diseases in dysentery control.
Sov. med. 18 no.8:42-43 Ag '54. (MLRA 7:8)

1. Iz 2-y Sumskey gorodskoy bol'nitsy (glavnyy vrach V.N.Aksenenko)
(DYSENTERY, prevention and control
Russia, role of gastro-intestinal departments in hosp.)

KRASOVITSKIY, Z.I.

Enterovaccine combined with antibiotics in the treatment of chronic
dysentery. Sov.med. 21 Supplement:9 '57. (MIRA 11:2)

1. Iz 2-y Sumskoy gorodskoy bol'nitsy.
(DYSENTERY) (ANTIBIOTICS) (VACCINES)

ERASOVITSKIY, Z.I.

Use of Chernokhovostov's vaccine in treating chronic dysentery.
Vrach.delo no.6:607-609 Je '58 (MIRA 11:7)

1. Vtoraya Sumaskaya gorodskaya bol'nitsa (nauchnyy rukovoditel' raboty - dots. S.I. Flanchik).
(DYSENTERY)

KRASOVITSKIY, Z.I.

Effect of concurrent ascariasis on the course of dysentery.

Z.I. Krasovitskii. Med. parazit. i parazit. bol. 27 no.2:229

Mr-Apr '58

(MIRA 11:5)

1. Iz 2-y Sumskoy gorodskoy bol'nitsy (glavnyy vrach V.N. Aksenenko)

(ASCARIDS AND ASCARIASIS)

(DYSENTERY)

Л.С. ГИДИН, З.И. Гидин —(авт.) "Терапевтическое лечение
оператор, with a vaccine combined with antibiotics," Khar'kov, 1960, .1 pp
(Kharkov State Medical Institute) (EL, 70-60, 114)

KRASOVITSKIY, Z.I.

Treatment of Breslau salmonellosis. Vrach. delo no.8:12-121 Ag '60.
(MIRA 13:9)

1. Vtoraya Sumskaya bol'nitsa i Sumskoye oblastnoye nauchnoye obshchestvo
gigienistov, epidemiologov, mikrobiologov i infektzionistov.
(SALMONELLA) (ANTIBIOTICS)

KRASOVITSKIY, Z.I.

Differential diagnosis of diphtheria of the pharynx and nasal
anginas with concomitant diphtherial bacilli carrier state.
Pediatria no.1:53-57 '62. (MIRA 15:1)

1. Iz infektsionnogo otdeleniya 4-y Sumskoy gorodskoy bol'nitsy
(glavnyy vrach L.D. Ivleva).
(DIPHTHERIA--MICROBIOLOGY) (PHARYNX--DISEASES)
(TONSILS--DISEASES)

KRASOVITSKIY, Z.I., kand.med.nauk (Summy)

Comparative study of the therapeutic effectiveness of modern anti-influenza drugs and methods. Vrach. delo no.1:121-122 Ja '62.

(MIRA 15:2)

(INFLUENZA)

KRASOVITSKIY, Z.I.

Use of lytic cocktails in the clinic for infectious diseases. Sov.
mod. 25 no.1:135-137 Ja '62. (MIRA 15:4)

1. Iz infektsionnogo otdeleniya Sumskoy gorodskoy bol'nitsy No.4
(glavnyy vrach L.D.Ivleva).
(COMMUNICABLE DISEASES) (ARTIFICIAL HIBERNATION)

KRASOVITSKIY, Z.I.

З. И. Красовицкий защитил 21/VI 1961 г. в Совете Харьковского медицинского института диссертацию на тему «Лечение затяжной и хронической дизентерии вакцинами и комбинированно с антибиотиками».

Антибиотикотерапия затяжных и хронических форм дизентерии малоэффективна. Лучшие результаты лечения получены при комбинации вакцин с антибиотиками — бисептином и стрептомицином. Худшие отмечены при сочетании с синтомицином.

Candidate of Medical Sciences

Dissertations approved by the Higher Attestation Commission in
January and February of 1961. Terap. arkh. no.6:117-121 '61

KRASOVITSKIY, Z.I., kand.med.nauk

Causes of staphylococcal complications in acute infectious diseases in children and their treatment. *Pediatrics* 41 no.9:35-38 S '62. (MIRA 15:12)

1. Iz infektsionnogo otdeleniya Sumskoy 4-y gorodskoy bol'nitsy (glavnyy vrach L.D.Ivleva). (STAPHYLOCOCCAL DISEASES)(COMMUNICABLE DISEASES)

GIL'VIN, E.A.; KRASOVITSKII, S.I.; VORONTSOV, V.Ia., 1967, ...

Observations of vaccinations against influenza A. Trudy 1968
64-67 164.
(SIA 18:5)

KRASCVITSKIY, Z.I., kand. med. nauk

Treatment of pneumonia in whooping cough patients with neurologic mixtures in combination with antibiotics and symptomatic substances.
Sov. med. 28 no.5:124-127 My '65. (MIRA 18:5)

1. Infektsionnoye otdeleniye 4-y Sumskoy gorodskoy bol'nitsy
(glavnyy vrach L.E.Ivleva).

KRIVONIZKIY, A.I., *Zhurn. med. nauk: Ser. med. i biol.*

Some problems of tetanus treatment and prophylaxis. *Sov. med.*
28 no.2:132-134 Ag '65. (SIRA 18:9)

1. Sumskaya oblastnaya sanitarno-epidemiologicheskaya stantsiya
(glavnyy vrach B.I. Likhin.).

110 - 547, 51.
ROGOVSKIKH, G.; KRASOVSKAYA, A.

The coal market [with summary in English. p.31]. Vnesh.torg.26 no.12:
15-19 D '56. (Coal trade) (MLRA 10:2)

KRASOVSKAYA, A.

More production with fewer workers. Sots. trud 7 no.9:123-
125 S '62. (MIRA 15:9)

1. Nachal'nik normativno-issledovatel'skogo otdela konstruktorsko-
tekhnologicheskogo byuro Upravleniya promyshlennosti prodovol'stven-
nykh tovarov Soveta narodnogo khozyaystva Latviyskoy SSR.
(Latvia--Bakers and bakeries)

Handwritten: 100-100-100
SOSINA, S.M.; CHALENKA, D.K.; LYSUKHA, L.N.; KRASOUSKAYA, A.A.

Local cold-resistant varieties of yeasts for making fruit and berry
wine in White Russia. Vestsi AN BSSR Ser. biol. nav. no. 2: 101-113
'56.

(White Russia--Yeast) (Fruit wines)

(MIRA 10:1)

USSR / Microbiology - Industrial Microbiology.

F

Abs Jour: Ref Zhur-Biol., No 9, 1958, 3841).

Author : Sosina, S. M., Chalenko, D. K., Mysukho, L. N.,
Krasovskaya, A. A.

Inst : ~~Not given.~~

Title : Local Cold-Resistant Yeast Races for Fruit-
Berry Viniculture.

Orig Pub: Tr. Belorussk. n.-i. in-t pishch. prom-sti,
1957, No 1, 54-66.

Abstract: No abstract.

Card 1/1

KRASOVSKAYA, N.A.

USSR/Chemical Technology - Chemical Products and Their Application. Fermentation Industry.

I-12

Abs Jour : Ref Zhu - Khimiya, No 1, 1958, 2830

Author : Sosina, S.M., Lysukho, L.N.m Krasovskaya, A.A.

Inst : Belorussian Scientific Research Institute of the Food Industry.

Title : Preparation of Fungus Malt on a Barley Medium for the Brewing Industry.

Orig Pub : Tr. Belorussk. n.-i. in-ta pishch. prom-sti, 1957, No 1, 67-73

Abstract : The production technology has been worked out for a fungus malt with the use of barley: crushed barley is stirred with an equal volume of water, and sterilized in an autoclave at a pressure of 1 atmosphere for 1 hour. The sterile slurry is mixed with a well sporulated culture of

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USSR/Chemical Technology - Chemical Products and Their Application. Fermentation Industry.

"APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R000826210

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2830

Aspergillus oryzae, used in an amount of 1-4%. The dishes containing the material (in a layer 4-5 cm thick) are kept in a thermostat at 28-30°, wherein the humidity is artificially maintained at 50-55%, and are stirred: the 1-st time after 24 hours, and at 12-hour intervals thereafter. Usually at the end of the third 24-hour period the first signs of spore formation are observed, after which the preparation is dried at 40°. The saccharifying capacity of the preparation is of 90 amylase units, the proteolytic -- of 125 units. Comparative brewing of beer was carried out with this preparation and with a fungus malt preparation produced with wheat bran, by the method of Ye.Ya. Kalashnikov and D.V. Livshits. In either case the mash was prepared from 50% malt, 50% unmalted crushed barley, 1% of enzymatic preparation from Aspergillus oryzae strain 21. Degustation of the finished beer revealed

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• USSR/Chemical Technology -- Chemical Products and Their
Application. Fermentation Industry.

I-12

• Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2830

that the beer prepared with the enzymatic preparation
produced with a barley medium, has better gustatory
characteristics, being free from extraneous bitterness
and of milder flavor. It is noted that both specimens
of beer show poor frothing and low froth stability.

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ALEKSEYEV, A.P.; BORISENKO, A.P.; GLIKSON, V.I.; GROMOVA, N.F.; KRASOYSKAYA, A.I.; NOVIKOVA, M.N.; OVCHAROVA, A.I.; KHVOYNIK, P.I.; CHURAKOV, V.P.; SHASTITKO, V.M.; GEORGIYEV, Ye.S., red.; SHIL'DKRUT, V.A., red.; LEVCHUK, K.V., red.; LEKANOVA, I.S., tekhn.red.

[Prices on the world capitalistic market; a handbook] TSeny mirovogo kapitalisticheskogo rynka; spravochnik. Moskva, Vneshtorgizdat, 1958. 391 p.
(MIRA 12:7)

1. Moscow. Nauchno-issledovatel'skiy kon'yunkturnyy institut.
(Prices)

KUZIN, A.M.; KRUSANOVA, N.I.; KRASOVSKAYA, A.I.

Changes in the structural viscosity of desoxyribonucleoproteins of rat sarcoma 45 treated in vivo with chemotherapeutic agents. Vop.onk. 4 no.2:146-150 '58. (MIRA 12:8)

1. Iz Instituta eksperimental'noy patologii i terapii raka (dir. - chlen-korrespondent AMN SSSR prof.N.N.Blokhin) Adres avtorov: Moskva, 3-ya Meshchanskaya ul., d.61/2, korp 9, Institut eksperimental'noy patologii i terapii raka.

(NITROGEN MUSTARDS, eff.

bis- β -chloroethylamine group on structural viscosity of tumor tissue desoxyribonucleoproteins in rat sarcoma 45 (Rus))

(NUCLEOPROTEINS, metab.

desoxyribonucleoproteins in tumor tissue of rat sarcoma 45, eff. of bis- β -chloroethylamine group on structural viscosity (Rus))

(NEOPLASMS, metab.

tumor tissue desoxyribonucleoproteins in rats sarcoma 45, eff. of bis- β -chloroethylamine group on structural viscosity (Rus))

KUZIN, A.M., KRUSANOVA, N.I., KRASOVSKAYA, A.I.

Effect of chemotherapeutic agents on the structural viscosity of desoxyribonucleoproteins in rat sarcoma 45 in vivo. Report No.2. Vop.onk.4 no.3:276-279 '58 (MIRA 11:8)

1. Iz Instituta eksperimental'noy patologii i terapii raka (dir.-chlen-korrespondent AMN SSSR, prof. N.N. Blokhin). Adres avtorov: Moskva, 3-ya Meshchanskaya ul., d.61/2, korp.9. Institut eksperimental'noy patologii i terapii raka.

(CYTOTOXIC DRUGS, effects,

on exper. sarcoma 45, changes of structural viscosity of desoxyribonucleoproteins (Rus))

(NUCLEOPROTEINS, metabolism,

desoxyribonucleoproteins in exper. sarcoma 45, eff. of cytotoxic drugs on structural viscosity (Rus))

(SARCOMA, experimental,

rat sarcoma 45, eff. of cytotoxic drugs on structural viscosity desoxyribonucleoproteins (Rus))

KRUSANOVA, N.I.; KRASOVSKAYA, A.I.

Serum aldolase activity in patients with tumors. Vop. onk.
9 no.9:9-14 '63. (MIRA 17:9)

1. Iz laboratorii biokhimii (zav. prof.- V.S. Shapot) Instituta
eksperimental'noy i klinicheskoy onkologii AMN SSSR. Adres
avtorov: Moskva, D-367, Volokolamskoye shosse, 30, Institut
eksperimental'noy klinicheskoy onkologii AMN SSSR.

KRXXX

KRASOVSKAYA, A.K., Cand Tech Sci -- (diss.) "Study of

the process of sulphide corrosion of iron and its

~~Alloys~~
~~alloys~~ with chromium and manganese." Sverdlovsk,

1958, 16 p. (Min of Higher Education USSR. Ural

Polytechnic Inst im S.V. Kirov) 100 copies

(KL, 29-58, 132)

- 57 -

18(0)

AUTHORS:

Gol'd, P. V., Krasovskaya, A. A.

SOV/163-58-4-1/47

TITLE:

Effect of the Curvature of Surface on the Reaction Diffusion
(Vliyaniye krivizny poverkhnosti na reaktsionnuyu diffuziyu)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958,
Nr 4, pp 5-11 (USSR)

ABSTRACT:

When investigating the process of reaction diffusion it is often assumed that the factors of diffusion are constant within the ranges of one-phase strata of reaction products and that the ratio of the flows of the reagents may be evaluated by the thickness of the inner and outer lower strata. Such assertions are not always correct and they may be the cause for wrong conclusions. The following peculiarities of interaction caused by the surface curvature of solid reagents may serve as an illustration. The corrosion process at high temperature was chosen for an analysis. At first, the kinetic properties appearing at the oxidation of a metallic specimen of regular shape, e. g. spherical shape, are investigated. The formulae (2) and (4) are derived, from which it is to be seen that the distribution of the concentration M in the stratum of the reaction product depends substantially upon the curvature of the

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Effect of the Curvature of Surface on the Reaction
Diffusion

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stratum. By comparing the formulae (4) and (5) we can see that, in spherical strata, the sinter is enriched by a metalloid against the corresponding plane sinter. On corroding of specimens having positively curved surfaces, coatings enriched by metalloids form through the whole width. On the contrary, in the case of negatively curved boundary surfaces, a reduction of metalloid contents of the sinter is to be expected, as well as an approximation of its composition to the stoichiometric composition, i. e. a diminution of the concentration of reagents, and therefore also a reduction of the factors of diffusion of the reagents. It is shown that D_M and D_{Me} do not only depend on temperature, time, and the coordinates of the point but also on the curvature of the sinter.

M - metalloid. Me - metal.

It is further shown that not only D_M and D_{Me} but also the ratio D_{Me}/D_M varies with changing curvature. The truth of this assertion was verified by testing the sulfide corrosion of iron. Besides, a correlation between the surface curvature and the ratio of the volumes of the outer and inner lower strata (V_1, V_2)

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Effect of the Curvature of Surface on the Reaction
Diffusion

SOV/163-58-4-1/47

was ascertained. The mean content of sulfur in the outer lower stratum of concave sinter was found to be higher by about 1% than that of plane sinter under equivalent conditions. S - sulfur. The apparent reasons for the increase of D_S at growing nonstoichiometric ratios of the sulfide coating are indicated. Inasmuch as the energy barrier layers, due to the displacement of the big sulfur atoms, are larger as compared with the displacement of iron ions, the factors promoting the loosening of the crystal lattice and the aggravation of the part performed by the homeopolar bonds are bound to facilitate the diffusion of sulfur atoms to a higher extent than iron ions. In this connection, the vacancies that stand in mutual action with each other are particularly effective. There are 4 figures and 11 references, 9 of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)

SUBMITTED: March 11, 1958

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SOV/126-7-4-18/26

AUTHORS: Krasovskaya, A.K. and Gel'd, P.V.

TITLE: Distribution of Chromium in Sulphide Scale on Iron-Chromium Alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 7, Nr 4, pp 626-627 (USSR)

ABSTRACT: By means of X-ray and metallographic analysis, the authors studied the scale formed on iron-chromium alloys containing from 1 to 29% Cr held for 2 to 6 hours at 800°C in the presence of sulphur vapour. They found that scale formed under these conditions consisted of two layers: a surface layer and an under-layer with chromium in the form of FeCr_2S_4 (spinel), concentrated mainly in the outer part of the under-layer. In alloys containing less than 4% Cr, the FeCr_2S_4 grains were so small that they were not resolved at 600 magnification. They became larger (0.03 to 0.05 mm) in alloys containing 4 to 12% Cr, while in alloys with the chromium content higher than 12% a continuous layer of FeCr_2S_4 was formed, separating the outer and the inner layers of the scale. A micro-photograph of scale formed on an alloy containing 17% Cr is reproduced in Fig 1, showing: A - the outer

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layer; B - the continuous layer of FeCr_2S_4 ;
V - the under-layer. The temperature dependence of electrical conductivity, σ , of this (FeCr_2S_4) part of the scale and of pyrrhotine (FeS) was determined, and it was found that: (1) the activation energy of the process in spinel is higher than that in FeS (0.2eV against 0.04eV); (2) the conductivity of spinel is low: at -186°C $\sigma_{\text{spinel}}:\sigma_{\text{pyrrhotine}} \approx 10 - 30$. Thus, it was shown that the resistance of high chromium content steels to the action of sulphur at high temperatures is due to the formation of a protective layer of FeCr_2S_4 . Regarding the fact that this compound is formed not in the immediate vicinity of the metal but at the interface of the two scale layers, the authors offer an explanation based on the possibility of the formation of divalent and trivalent chromium cations. The inner layer of the scale is formed by the interaction between the sulphur atoms diffusing through the sulphide layer and the atoms of both iron and chromium. Under the conditions of intimate contact with the metal which acts as a reducing agent ($\text{Me} + \text{M}^{3+} \rightarrow 2\text{Me}^{2+}$), sulphide, containing mainly

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divalent cations, is formed. Since in this region of the system the iron content is higher than the chromium content, and the number of lattice defects in pyrrhotine is small, the concentration of trivalent chromium cations due to reaction $\text{Fe}^{2+} + \text{Cr}^{3+} \rightleftharpoons \text{Fe}^{3+} + \text{Cr}^{2+}$ will be quite small. For this reason, and also due to isomorphism and similarity of the parameters of CrS and FeS (which form a continuous series of solid solutions), pyrrhotine alloyed with chromium is formed in this part of the scale. Diffusion of the Fe and Cr cations to the outer layer of the scale results (due to higher mobility of Fe^{2+} cations) in an increase of the concentration of the Cr cations in the inner layer of the scale. Owing to this and to the growing number of defects in pyrrhotine, as the diffusing Cr cations approach the outer part of the under-layer, they change their charge and become trivalent. With increasing concentration of the trivalent Cr cations in the sulphide lattice, favourable conditions are created for the formation of spinel. The authors conclude by drawing attention to the fact that at higher temperatures (at which the activation energy of the diffusion and

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electrical conduction processes in spinel is comparatively high) the protective power of chromium diminishes. Thus, the ratio of constants characterising the rates of oxidisation of alloys with 1.09 and 17.46% Cr at 500°C is equal to 570 and at 800°C only 55, which means that with rising temperature the permeability of the sulphide spinel increases more rapidly than that of pyrrhotine. There is 1 figure and 4 references, 3 of which are Soviet and 1 German.

ASSOCIATION: Ural'skiy politekhnicheskii institut imeni S.M.Kirova
(Ural Polytechnical Institute imeni S.M.Kirov)

SUBMITTED: May 16, 1958

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GEL'D, P.V.; KRASOVSKAYA, A.K.

Mechanism of the sulfide corrosion of iron. Part 1:
Kinetic aspects of the process. Zhur.fiz.khim. 34 no.7:
1585-1592 J1 '60. (MIRA 13:7)
(Iron--Sulfur) (Sulfur)

S/076/60/034/008/005/014
B015/B054

AUTHORS: Gel'd, P. V. and Krasovskaya, A. K. (Sverdlovsk)
TITLE: Mechanism of the Sulfide Corrosion of Iron. II. Structure
of Sulfide Scale and Mechanism of the Process
PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 8,
pp. 1721-1727

TEXT: In connection with contradictory data in publications (Refs. 2-5) on the possibility of a diffusion of sulfur through the scale layer in the sulfide corrosion of iron, the authors investigated the macro- and microstructure of sulfide scale and the dependence of its structure on various parameters. The experiments were made on thick scale layers of differently shaped Armco iron samples with the use of an experimental procedure described in Ref. 6. To examine the macrostructure of scale, the authors studied the influence of temperature and of the duration of action of the sulfur vapor ($p_{S_2} = 50$ torr) on cylindrical samples (diameter 4 mm) at 500° - 800°C and a duration of 0.5 to 36 h. Two layers

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Mechanism of the Sulfide Corrosion of Iron.
II. Structure of Sulfide Scale and
Mechanism of the Process

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were found at temperatures above 600°C. X-ray structure and chemical analyses showed that both layers are single-phase, and consist of pyrrhotite crystals (Fig.). With the aid of an inert platinum marking it was found that the outer scale layer originates from iron diffusion, and the inner scale layer from the intrusion of sulfur. Experiments with convex and concave sample surfaces showed that sulfur diffusion is facilitated by an increase in curvature of the scale surface while it may be slowed down on compact samples. The influence of surface curvature depends on the volume ratio of the two pyrrhotite scale layers. An increase in the specific gravity of the lower scale layer with increasing curvature is explained by the rise in sulfur concentration in the pyrrhotite. Iron diffuses mainly as a Fe^{2+} cation, whereas sulfur diffuses in the quasiatomic state. It is assumed that a change in stoichiometric conditions in the pyrrhotite lattice effects a stronger rise of the diffusion coefficient of sulfur than of iron. Finally, the authors thank V. I. Arkharov and A. N. Orlov for their interest in the present investigation. B. Ya. Lyubov and D. Ye. Temkin are mentioned in

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Mechanism of the Sulfide Corrosion of Iron.
II. Structure of Sulfide Scale and
Mechanism of the Process

S/076/60/034/008/005/014
B015/B054

the paper. There are 1 figure and 10 references: 7 Soviet, 1 US, and 2 German.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova
(Ural Polytechnic Institute imeni S. M. Kirov)

SUBMITTED: October 20, 1958

Card 3/3

S/137/62/000/002/043/144
A006/A101

AUTHORS: Krasovskaya, A. K., Kozmanov, Yu. D.

TITLE: On the nature of structural heterogeneity of pyrrhotite obtained in iron sulfonation

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 32, abstract 2G250 ("Tr. Ural'skogo politekhn. in-ta", 1961, no. 114, 129-133)

TEXT: Armco-Fe plates were sulfonated in ampoules at 800 - 900°C under S vapor pressure as high as 3 - 1,000 mm Hg. On radiographs, broadening of FeS lines was revealed that was caused by the presence of microstresses. The authors explain that the minimum thermodynamic potential can be reached by the variation of concentrations or stresses, or both factors simultaneously. ✓

Ye. Mozhukhin

[Abstracter's note: Complete translation]

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KRASOVSKAYA, A.K.; KOZMANOV, Yu.D.

Character of the structural heterogeneity of pyrrhotite
obtained by sulfidizing iron. Trudy Ural.politekh.inst. no.14:
129-133 '61. (MIRA 16:6)
(Pyrrhotite) (Crystal lattices)

MESCHANSKAYA, R.Ya.; EYDEL'NANT, N.G.; ZEL'DICH, E.I.; KRASOVSKAYA, A.M.

Diatomite and its use in the formulas for rubber footwear. Kazakh.
1 rez. 24 no.5:20-22 My '65. (MIRA 18:9)

1. Nauchno-issledovatel'skiy institut rezinovykh i latskovykh izdeliy.

KRASOVSKAYA, G. I.

G. I. Krasovskaya. Determination of thermal constants for fire-flowing hygroscopic materials. F. 1045

Moscow Inst. of Tech. of
the Food Industry
July 24, 1948

30: Journal of Technical Physics, Vol. 19, No. 9 (Sept. 1949)

PA 149789

KRASOVSKAYA, G. I.

USSR/Physics - Hygroscopic Materials
Heat Insulators Sep 49

"Determining the Thermal Constants of Hygroscopic Friable Materials," G. I. Krasovskaya, Moscow Technol Inst of Food Industry, 7 pp

"Zhur Tekh Fiz" Vol XIX, No 9

Gives universal method to determine thermal constants of friable materials (heat insulators), constants of friable solution of problem of cooling based on analytic solution of problem. Method permits plates in unrestricted medium. Method permits coefficients of heat- and temperature-conductivity

149789

USSR/Physics - Hygroscopic Materials (Contd) Sep 49

and specific heat of material to be determined from one short experiment. Instrument measuring temperature is not introduced into temperature field of material under study. Submitted 24 Jul 48.

149789

KRASOVSKAYA, G.I., dotsent, kandidat tekhnicheskikh nauk.

Studying thermediffusion in sugar solutions. Trudy MTIPP no.6:152-
157 '56. (MIRA 10:3)

(Sugar) (Diffusion)